IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with <u>underlining</u> and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please amend claims 6 and 14 in accordance with the following:

Claims 1-5 (cancelled)

6.   (Currently Amended)   A method for identifying pharmaceutical targets, comprising:

determining a plurality of gene expression patterns for ~~a gene~~<u>genes</u> of similar cells, and for each gene expression pattern, determining an expression rate of the gene<u>s</u> in ~~each of the cells~~<u>a cell</u>;

at least partially reconstructing a chronological sequence for the gene expression patterns;

forming a dynamic model of a regulatory network of genome and proteome for ~~each~~ <u>a</u> cell using a neuronal network formed in the following manner:

representing a gene of the genome and its associated protein ~~respectively~~ with a ~~gene~~-neuron ~~and a protein neuron~~ in the neuronal network;

representing the expression rate of the gene with a non-negative activity of the ~~gene~~-neuron;

representing a regulatory effect of ~~the~~ <u>a first</u> gene/protein on ~~the gene~~<u>a second gene</u> using a synaptic connection from ~~the protein neuron to the gene neuron~~<u>a neuron representing the first gene/protein to a neuron representing the second gene</u>; and

representing whether the regulatory effect is strengthening or inhibiting by changing the sign of the synaptic connection and by weighting the synaptic connection;

<u>comparing the neuronal network with and</u> adapting the neuronal network to~~, and comparing the neuronal network with,~~ each gene expression pattern; and

~~investigating and~~ deducing the regulatory network based on the ~~comparison~~<u>adapted neuronal network</u>.

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7.   (Previously Presented)   The method in accordance with claim 6, wherein a post-translational modification of a first protein by a second protein is represented by a synaptic connection with a multiplicative effect from a second neuron to a first neuron.

8.   (Previously Presented)   The method in accordance with claim 6 wherein an external influence on the regulatory network is represented by an input node in the neuronal network.

9.   (Previously Presented)   The method in accordance with claim 6 wherein the neuronal network is adapted to each specific gene expression pattern so as to reduce a level of networking.

10.   (Previously Presented)   The method in accordance with claim 7 wherein an external influence on the regulatory network is represented by an input node in the neuronal network.

11.   (Previously Presented)   The method in accordance with claim 10 wherein the neuronal network is adapted to each specific gene expression pattern so as to reduce a level of networking.

12.   (Previously Presented)   The method in accordance with claim 7 wherein the neuronal network is adapted to each specific gene expression pattern so as to reduce a level of networking.

13.   (Previously Presented)   The method in accordance with claim 8 wherein the neuronal network is adapted to each specific gene expression pattern so as to reduce a level of networking.

14.   (Currently Amended)   A system for identifying pharmaceutical targets, comprising:

determining means for determining a plurality of gene expression patterns ~~of a cell~~for genes of similar cells, with an expression rate of the genes in ~~the~~ a cell being determined for each gene expression pattern, the determining means at least partially reconstructing a chronological sequence for the gene expression patterns in the cell;

modeling means for forming a dynamic model of a regulatory network of genome and proteome for the cell using a neuronal network formed in the following manner:

representing a gene of the genome and its associated protein ~~respectively~~ with a ~~gene-~~neuron ~~and a protein neuron~~ in the neuronal network;

representing the expression rate of the gene with a non-negative activity of the gene neuron;

representing a regulatory effect of ~~the~~ a first gene/protein on ~~the~~ a second gene using a synaptic connection from ~~the protein neuron to the gene neuron~~a neuron representing the first gene/protein to a neuron representing the second gene; and

representing whether the regulatory effect is strengthening or inhibiting by changing the sign of the synaptic connection and by weighting the synaptic connection;

comparison means for comparing the neuronal network ~~to~~ with each gene expression pattern;

adapting means for adapting the neuronal network to ~~the~~ each gene expression patterns; and

deducing means for deducing the regulatory network based on the ~~comparison~~adapted neuronal network.